

Amendments to the Claims:

This listing of claims will replace all prior versions, and listings, of claims in the application:

Listing of Claims:

1 – 14. (canceled)

15. (original) A system for dissipating heat from a semiconductor device, comprising:

a thermally conductive lid, comprising at least one cavity corresponding to at least one die mounted on a substrate; and

a conductive layer deposited in the at least one cavity and having a melting point greater than the maximum operating temperature of the semiconductor device, the conductive layer operable to substantially fill a space between the at least one cavity and the at least one die when the lid is coupled to the substrate.

16. (original) The system of Claim 15, wherein the conductive layer is further operable to assume a liquid state when heated, the liquid state operable to distribute the conductive layer within the space between the at least one cavity and the at least one die when the lid is coupled to the substrate.

17. (original) The system of Claim 15, wherein the conductive layer is a eutectic solder.

18. (original) The system of Claim 15, wherein the conductive layer is a lead-tin solder.

19. (original) The system of Claim 15, wherein the conductive layer is an indium-based solder.

20. (original) The system of Claim 15, wherein the conductive layer is a silver-filled epoxy.

21. (original) The system of Claim 15, wherein the conductive layer is an epoxy having a thermal conductivity greater than 10 W/m-°C.

22. (original) The system of Claim 15, wherein the at least one cavity corresponds to at least two dies mounted on the substrate, the at least two dies operable to fit inside the at least one cavity when the lid is coupled to the substrate.
23. (original) The system of Claim 15, wherein the at least one cavity comprises at least two cavities, and wherein the at least one die comprises at least two dies, each cavity corresponding to at least one of the at least two dies mounted on the substrate.
24. (canceled)
25. (new) A system comprising:
a semiconductor die having a bottom surface and a top surface;
a lid with a cavity having an inner surface, accommodating the semiconductor die; and
a heat conducting element having a thermal conductivity greater than 10 W/m-°C adhering to the inner surface of the cavity and conforming to the surface contour of the top surface of the chip and contacting without adhering to the top surface of the chip.
26. (new) The system of claim 25, in which the heat conducting element contacts an edge of the die.
27. (new) The system of claim 25, in which the lid has two or more cavities that accommodate two or more dies.
28. (new) The system of claim 25, further comprising a substrate to which the lid is adhered.
29. (new) The system of claim 25, in which the heat conductive material is a solder material.
30. (new) The system of claim 29, in which the solder material comprises lead.
31. (new) The system of claim 29, in which the solder material is substantially free of lead.
32. (new) The system of claim 25, in which the heat conductivity of the material is a thermoplastic material.

33. (new) The system of claim 25, in which the thermal conductivity of the heat conductive material is higher than the thermal conductivity of epoxies.

34. (new) The system of claim 27, in which the heat conductive material in the cavities varies in thickness to compensate for any variation in die-thickness.

34 (new) A system comprising:

a semiconductor die having a bottom surface and a top surface;

a lid with a cavity having an inner surface, accommodating the semiconductor die; and

a means for conducting heat from the die to the lid having a thermal conductivity greater than 10 W/m-°C, the heat conducting means adhering to the inner surface of the cavity and conforming to the surface contour of the top surface of the chip and contacting without adhering to the top surface of the chip.